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Recruiting Patients into the CDC's Colorectal Cancer Screening Demonstration Program:

Strategies and Challenges Across 5 Sites

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Abstract

BACKGROUND—In 2005, the Centers for Disease Control and Prevention (CDC) funded 5 sites as part of the Colorectal Cancer Screening Demonstration Program (CRCSDP) to provide colorectal cancer screening to low-income, uninsured, and underinsured individuals. Funded sites experienced unexpected challenges in recruiting patients for services.

METHODS—The authors conducted a longitudinal, qualitative case study of all 5 sites to document program implementation, including recruitment. Data were collected during 3 periods over the 4-year program and included interviews, document review, and observations. After coding and analyzing the data, themes were identified and triangulated across the research team. Patterns were confirmed through member checking, further validating the analytic interpretation.

RESULTS—During early implementation, patient enrollment was low at 4 of the 5 CRCSDP sites. Evaluators found 3 primary challenges to patient recruitment: overreliance on in-reach to National Breast and Cervical Cancer Early Detection Program patients, difficulty keeping colorectal cancer screening and the program a priority among staff at partnering primary care clinics responsible for patient recruitment, and a lack of public knowledge about the need for colorectal cancer screening among patients. To address these challenges, site staff expanded partnerships with additional primary care networks for greater reach, enhanced technical support to primary care providers to ensure more consistent patient enrollment, and developed tailored outreach and education.

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CONCLUSIONS—Removing financial barriers to colorectal cancer screening was necessary but not sufficient to reach the priority population. To optimize colorectal cancer screening, public health practitioners must work closely with the health care sector to implement evidence-based, comprehensive strategies across individual, environmental, and systems levels of society.

Keywords

colorectal cancer screening; program evaluation; qualitative evaluation; program implementation; patient recruitment

INTRODUCTION

Colorectal cancer is the second most common type of cancer diagnosed in the United States and the second most deadly among both men and women.^{1,2} Despite the methods available to detect and prevent colorectal cancer in its early stages, many Americans remain unscreened.² In 2010, US screening prevalence was just over 65%, with large variations across states.² These data suggest significant disparities in screening prevalence among those without health insurance and those with lower household incomes.^{2–5} Racial and ethnic minorities and those with lower levels of education also report lower rates of colorectal cancer screening.⁶

Fortunately, routine screening has been found effective in reducing colorectal cancer incidence and mortality.^{7,8} When colorectal cancer is detected at the earliest stage, the 5-year survival rate is greater than 90%, compared with a 12% survival rate for those diagnosed with metastatic disease.⁹ These outcomes make colorectal cancer screening a critical component in the prevention and early detection of colorectal cancer, especially because endoscopy screening methods may prevent disease entirely if precancerous lesions are found and removed.

To assess the feasibility of providing community-based colorectal cancer screening to the US public, in 2005 the Centers for Disease Control and Prevention (CDC) initiated a pilot service delivery program, the Colorectal Cancer Screening Demonstration Program (CRCSDP).¹⁰ Over the course of 4 years, the CDC provided more than \$8 million in funding to 5 sites across the country to support the development and implementation of the first federally funded and organized public health colorectal cancer screening program. This was modeled to some extent after the CDC's National Breast and Cervical Cancer Early Detection Program (NBCCEPD)¹¹ referred throughout this paper as the Breast and Cervical Program; funded sites were charged with developing service delivery programs to offer high-quality colorectal cancer screening at no cost to patients. Sites were required to offer screening using the modalities and intervals recommended by the US Preventive Services Task Force.¹² The overall priority population for the program included low-income, uninsured, and underinsured men and women ages 50 to 64 years at average risk for colorectal cancer. Sites were permitted to fine-tune selection based on community composition and burden. A more detailed description of the CRCSDP can be found elsewhere in this Supplement to *Cancer*.¹³

The catchment areas for the CRCSDP were the city of Baltimore, Maryland; greater Seattle, Washington; St. Louis, Missouri; Suffolk County, New York; and the state of Nebraska. Along with funding screening tests and procedures, programs conducted activities to support high-quality screening and facilitate patient adherence. Working closely with their contracted provider sites, staff collected data from patients to add to the larger evaluation of the 5 CRCSDP sites. Patient recruitment was essential to ensuring success of the program and effective use of federal funds. Details of the program implementation models used by each of the 5 sites have been published elsewhere.¹⁴

As part of a broad evaluation of the CRCSDP, we conducted a longitudinal, multiple-case study to assess program implementation.¹⁵ Use of qualitative methods facilitated documentation of the program implementation processes, including related challenges and strategies used to address them, over the course of the demonstration project. Given that qualitative data are both experiential and empirical, this study served our purpose of exploring why and how events occurred during program implementation and interpreted outcomes-focused quantitative data presented both within this article (Figures 1 and 2), and across articles within this supplement to *Cancer*.^{13,16} What the qualitative data provide are systematic accounts of what occurred at the sites from the perspectives of those running the program. In this report, we discuss an unanticipated challenge that emerged for the CRCSDP sites: recruiting eligible men and women for colorectal cancer screening.

Patient data collected as part of our overall evaluation indicate that patient recruitment for the program was slow during early screening implementation.¹³ In general, program staff found recruiting patients for the CRCSDP was difficult. Consequently, sites made programmatic adjustments, adding new strategies or revising existing ones, to boost enrollment. We describe the initial recruitment strategies employed by sites, subsequent recruitment challenges, and programmatic adjustments made to improve patient recruitment for colorectal cancer screening. We divide the remainder of the article into sections describing the relevant literature and research methods, results from the 5 sites, and discussion and conclusions.

In addition to cost and health insurance status, other researchers have identified other significant barriers to colorectal cancer screening.^{2–5} At the individual level, barriers to screening include lack of knowledge and awareness of the need for screening, fear of the procedure or unfavorable results, lack of trust in the medical system, and fatalistic beliefs about cancer in general.^{10,17–21} Results from qualitative studies, in particular, have revealed barriers that are rooted in misconceptions about the need for screening.^{17,18,22} For instance, patients are often confused about risk factors for colorectal cancer and unaware that both men and women are susceptible.^{17,18} In addition, many people lack the knowledge that, if identified early, colorectal cancer treatment is highly effective in reducing morbidity and mortality.

Other barriers to colorectal cancer screening were identified throughout the literature as occurring at the environmental and systems levels.^{17,20} Among environmental barriers for patients are securing transportation, receiving adequate time off from work to complete screening, and identifying an available friend or family member to escort the patient to and

from the procedure.^{19,20,23} Systems-level barriers exist within the larger health care system and are related to patients' interactions with providers.²⁰ The most commonly cited systems-level barrier is the absence of providers' recommendations for screening to patients.^{17,18,20,24–26} Even if a provider does make a recommendation for screening, the patient may still not have an adequate understanding of how to complete the process.^{17,19,20} Multiple factors contribute to these systems-level barriers, such as high patient volume, competing comorbidities of patients, and provider beliefs that patient compliance with the recommendation is unlikely.^{17,18,20,24–26}

Complementary to research identifying patient barriers to screening, intervention studies have been conducted to test strategies aimed specifically at improving colorectal cancer screening adherence. In these studies, several groups have looked at the effectiveness of media campaigns, client and provider reminders, group education, and patient navigation.^{23,27–31} Much of the intervention research on colorectal cancer screening adherence is summarized in the *Guide to Community Preventive Services (Community Guide)*, developed by the independent, non-federal Task Force on Community Preventive Services.³² In the *Community Guide*, systematic literature reviews are published on health topics to identify effective public health interventions that will improve health and prevent disease. Based on the most recent reviews, the *Community Guide* recommends several strategies with a robust evidence base including patient reminders, provider reminders, and the use of small media materials such as brochures and letters. Currently, recommendations of the *Community Guide* for colorectal cancer screening are almost entirely based on studies of fecal occult blood testing (FOBT) screening. Insufficient evidence exists to make similar recommendations for other screening modalities such as colonoscopy.

Unlike the research we report, studies such as those reviewed for the Community Guide, emphasize outcomes and impact only, and often neglect program processes and the experiences of staff that might help to explain the outcomes. We turn next to our approach to examining patient recruitment for colorectal cancer screening.

MATERIALS AND METHODS

We conducted a longitudinal, multiple-case study of the CRCSDP over the 4-year program as part of an evaluation of program implementation. Each of the 5 CRCSDP sites was included in the analysis, each site representing a unique case.^{15,33} Qualitative methods included semi-structured interviews with 100 program stakeholders, 125 participant observations, and reviews of 19 documents. The selection of interview participants was based on purposeful sampling.³⁴ Data were analyzed within and across cases using systematic coding and the constant comparative method.³⁵ The first author developed and applied an initial codebook to the data using the software program Atlas.ti.³⁶ The team cross-checked the codes and developed patterns using inductive reasoning.³⁷ These patterns were confirmed by member checking with study participants. A more detailed summary of the qualitative case study methods is included elsewhere in this Supplement to *Cancer*.³⁸

RESULTS

Results from this multiple-case study reflect the process learning by sites about patient recruitment for screening through the CRCSDP. We begin by describing the initial recruitment strategies sites used and follow with 3 primary recruitment challenges we identified during analysis. Finally, we describe the programmatic adjustments sites made to improve patient recruitment.

Initial Recruitment Strategies

Before screening implementation, many site staffs anticipated being overwhelmed by the demand for free colorectal cancer screening services offered by their programs, particularly because screening resources were limited and their programmatic infrastructure was new. In attempting to align supply and demand, many site staff believed that relying on the participation of women in the existing Breast and Cervical Program (ie, in-reach) and using small media materials from national public awareness campaigns would be sufficient to recruit patients for screening. Hindsight revealed the need for planning more aggressive recruitment activities. Table 1 identifies the initial recruitment strategies used at sites to elicit interest in colorectal cancer screening and recruit patients into the program.

Recruitment Challenges

Once recruitment strategies were implemented and screening was initiated, patient enrollment was significantly lower than anticipated at sites. Figure 1 illustrates screening trends by quarter over the course of program implementation, indicating a gradual incline, but slow start to patient recruitment. (Screening rates necessarily declined during the last year of funding, as programs approached conclusion.) A site staff member from the Baltimore city site described the slow start succinctly: “We thought we would open an endoscopy suite, and the people would come running down the hallway...and that simply didn’t happen.” Provider staff across sites indicated they had difficulty eliciting patients’ interest in the program. Furthermore, enrollment forms sent by sites to Breast and Cervical Program patients and their male counterparts were not returned in the volume anticipated, prompting site staff to express concern about the sex imbalance (Fig. 2) among patients recruited into the CRCSDP. A site staff member from Nebraska summarized the overall situation: “Just because you build it, doesn’t mean people will come.”

Consistent with problems and inefficiencies identified by program staff, our analysis revealed 3 major factors accounting for sites’ initial recruiting challenges: primary dependence by sites on in-reach to Breast and Cervical Program patients; difficulty integrating the CRCSDP among provider site staff responsible for patient enrollment; and patients’ knowledge, attitudes, and beliefs about colorectal cancer screening.

Primary dependence on in-reach to Breast and Cervical Program patients—

Staff at 4 of the 5 sites initially relied on in-reach to a large volume of patients already participating in other screening programs with similar age, income, and insurance eligibility requirements, particularly the Breast and Cervical Program. Launched in 1990, the Breast and Cervical Program offers free or reduced-cost primary care office visits including

mammograms and Pap smears to women with low income and lacking adequate insurance.¹¹ The 4 CRCSDP sites that participated in the Breast and Cervical Program viewed the large number of screening-adherent, Breast and Cervical Program-enrolled patients as a readily available “natural audience” for colorectal cancer screening. Strategies to recruit Breast and Cervical Program patients for the CRCSDP in Nebraska and St. Louis included sending postcards with information about the program, along with program enrollment forms, to women, including extra forms for their male counterparts. Baltimore city and greater Seattle engaged provider site staff, including case managers, to identify and contact their Breast and Cervical Program patients for enrollment in the CRCSDP.

Although some Breast and Cervical Program patients were successfully recruited for screening during early implementation, many more did not respond to efforts to enroll them. A staff member from Baltimore city expressed disappointment with the results of early recruitment efforts that relied on Breast and Cervical Program patients for enrollment in the CRCSDP.

Everybody thought we’re going to have plenty of Breast and Cervical Program clients and we didn’t need to do anything...then no one came to the party, you know. They [Breast and Cervical Program patients] are neither all over 50, nor are they all interested or eligible for some reason....So, I don’t think that was as successful as we had hoped. For every nine people we talked to, one person was interested in the program.

This disappointment was echoed across the 4 sites that participated in the Breast and Cervical Program. CRCSDP site staff found themselves in a delicate position—to advertise the program to enough patients to continuously meet program screening goals while limiting interest to avoid overwhelming systems and resources.³⁹ Overall, site staff believed that relying on the large pool of Breast and Cervical Program patients would provide a sufficient number of patients for colorectal cancer screening, given available screening resources. In addition, staff expressed concern that more aggressive recruitment efforts would lead to screening demand that sites would be unable to meet. Although in-reach to Breast and Cervical Program patients was an initial strategy that resulted in modest recruitment success, most sites quickly realized that relying on this pool of patients alone was inadequate to reach screening capacity.

Difficulty integrating the CRCSDP at provider sites—Difficulty integrating the CRCSDP at provider sites was also a major contributing factor to low recruitment for several programs. Program sites contracted with health care networks such as primary and specialty care clinics and community health centers to recruit patients into their programs. Interviewees suggested that provider site staff did not always remember to enroll eligible patients into the CRCSDP. One clinic staff person said, “A lot of people were being missed. I would get [medical] charts and check, and I’d be, like, this [patient] would have been the perfect candidate; they had no insurance [meaning that the patient was not enrolled in the program].” Three factors seemed to contribute to provider sites’ difficulties in integrating the new program: heavy demand on primary care providers and support staff, especially in indigent-care facilities, such as those participating in the CRCSDP; patients with acute

health issues requiring immediate attention, leaving little time to discuss preventive care; and provider site staff discomfort with discussing colorectal cancer screening with patients.

In regard to demands on health care staff, interviewees suggested that colorectal cancer screening messages can quickly lose priority given the hectic environment of a community health center, resulting in haphazard and inconsistent recruitment. A staff member at the greater Seattle site said, “Providers get slammed by schedules and add-ons and walk-ins and, you know, it’s hard to keep everything present if that’s not the issue or complaint that the patient is coming in for.” Consequently, without a systematic approach to ensure recruitment of eligible patients, many potential participants were missed.

Similarly, given the limited time for patient-provider interaction, colorectal cancer screening messages often became low priority when providers and support staff were faced with patients experiencing acute medical needs, including existing comorbidities such as diabetes and heart disease. Another site staff member referred to this, saying, “Our clients have so much going on: undercontrolled diabetes, they are homeless, they have hypertension. They just have so much going on that it’s hard to wrap this issue [colorectal cancer screening] into a visit with them.”

Finally, some provider site staff members were uncomfortable broaching the subject of colorectal cancer screening with patients, and this hindered recruitment efforts. In particular, provider site staff lacked the appropriate vocabulary to engage patients in a discussion about screening and participation in the program. For instance, some interviewees reported that provider site staff felt embarrassed or uncomfortable talking with patients about colorectal screening, given the need to discuss the bowel and feces. A staff member from the greater Seattle site described the difficulty medical assistants (MAs), in particular, had with recruiting patients for the CRCSDP: “They [MAs] are not comfortable with the topic; they don’t know how to talk about it.”

Patient knowledge, attitudes, and beliefs—To provide patients with an understanding of colorectal cancer and why screening is vital for prevention, site staff distributed existing brochures and posters created by the CDC and the American Cancer Society. The CDC encouraged the use of these materials, particularly from its *Screen for Life* campaign, to help sites conserve resources and unify messaging about colorectal cancer prevention.⁴⁰ To promote their own programs, site staffs customized these materials by adding local program contact information and displayed them in clinic waiting areas or mailed them with enrollment forms.

Although site staff members viewed the CRCSDP as an enormous opportunity to increase the reach of preventive care, they soon realized patients lacked a basic understanding of the need for colorectal screening or had negative attitudes and beliefs associated with screening that prevented them from seeking program services. Site staff indicated that, in general, community members seemed uninformed about colorectal cancer, its risk factors, and how to prevent it. Also, sites found that small media alone were insufficient to stimulate interest or alter existing attitudes and beliefs about screening. Even Breast and Cervical Program patients, familiar with receiving regular breast and cervical cancer screening, appeared

unaware of the importance of colorectal cancer screening. A St. Louis staff member speculated that Breast and Cervical Program patients, adherent to breast and cervical cancer screening, did not seem to understand the importance of colorectal cancer, saying: “It isn’t necessarily that they didn’t remember reading about it [colorectal screening through the CRCSDP], because they did; they just didn’t think it was necessary or important enough.”

Site staff members said that, in their efforts to initiate screening as soon as possible, they underestimated the priority population’s need for education on colorectal cancer screening, as this statement from a site staff member in Nebraska demonstrates:

I think one of the biggest issues is education. I think we expected to go to some of these places and just enroll [patients]. Well, I don’t know that everyone’s ready to just enroll. They need to be educated first. If they don’t understand the point of colorectal cancer screening, why on earth would they enroll? So, I think that that education piece, we kind of forgot about. We thought we should jump ahead to hurry up and just get people enrolled. And I think that’s wrong. If the population’s not quite there yet, it’s much more difficult to get them to fill out the paperwork.

Site staff indicated that lack of awareness of or interest in colorectal cancer seemed especially problematic for men, who participated in the CRCSDP in fewer numbers than women. Program staff attributed this lack of uptake to several factors. First, sites noted men’s overall tendency to avoid preventive services, as the following quote exemplifies: “I think that the literature supports that women seek preventive care more than men, in general...[men are] a little less likely to fix something that’s not broken.”^{41–43} Second, some interviewees proposed that men may harbor fears about colonoscopy that are related to homophobia. That possibility is discussed at length elsewhere in this Supplement to *Cancer*.³⁸

Efforts to Improve Recruitment

As staff members across the program sites recognized recruitment as a problem, they promptly revised in-reach strategies and introduced new activities in an effort to increase the number of people enrolled. Programmatic adjustments were based on recruitment challenges specific to each site. Overall, 3 strategies were implemented to address sites’ recruitment challenges: expanding partnerships with additional primary care networks for greater reach; enhancing support to providers to address organizational and systemic barriers to encourage more consistent patient enrollment; and developing tailored outreach and education.

Expanding partnerships to additional primary care networks—Because relying primarily on in-reach to Breast and Cervical Program patients’ yielded disappointing enrollment results, sites expanded recruitment efforts by building partnerships with primary care networks not previously contracted with the CRCSDP. This strategy extended the reach of the program to medically underserved patients in new institutions. For example, a staff member from the city of Baltimore site described how they built a new partnership with a large local health care organization to recruit more patients for the CRCSDP:

We paid [a large health care organization] to basically make phone calls to their clients. They have electronic medical records, and within 20 seconds, they could

pull up every single client in their system that met our eligibility criteria as far as insurance, income, geographic location, and lapse in screening.

This interviewee indicated that health care systems serving program-eligible populations benefit from the partnership with public health because they are able to refer their patients to free cancer screening services that would otherwise be inaccessible: “It extends their [patients’] care.”

Other sites took similar actions to increase recruitment and expand geographic coverage, working more closely with primary care networks such as Federally Qualified Health Centers (FQHCs) in their catchment area or by adding other community health centers to their program. A St. Louis staff member recounted concerted efforts they took to follow up with FQHC staff members to encourage them to actively enroll patients in the program:

Program staff followed up with phone calls [to FQHCs], you know, “You’ve heard a little bit about our program...we’d really like to get this program rolling and we’d like you to make some referrals. If you’re interested, let’s work on that.”

Changes in recruitment strategies to counter low turnout from Breast and Cervical Program patients involved broadening the base of potential patients by expanding the number of provider sites and then working with their staff to cultivate and strengthen those partnerships in ways that encouraged greater enrollment.

Increasing support to existing provider sites—After seeing lower-than-expected recruitment results based on referrals from original partnering primary care clinics, staff from several CRCSDP sites identified the need for increased support to provider sites. Site staff worked to increase the visibility of the program through facilitating group problem solving among provider site staff members, providing additional training, and implementing provider assessment and feedback mechanisms. Together, these strategies aimed to establish systems to ensure consistent recruitment and ensure that provider sites remained energized about and committed to the CRCSDP.

Interviewees from several sites said they believed that conducting visits to clinics reminded providers and their staff of the program. This was especially true for the greater Seattle site, where an interviewee mentioned that site staff had started conducting regular clinic visits to keep provider site staff mindful of the program or, in their words, to “keep the program present.” One interviewee said, “Our site staff went out and basically met with everybody [all provider sites] again and did retraining to get people refocused.” Another site staff member from the greater Seattle site suggested that these visits had a noticeable effect on improving recruitment: “Whenever we go to a health center, the number of referrals coming from that health center always jumps right after our visit.” Site staff also convened clinic staff members across multiple provider sites to discuss common challenges and to brainstorm potential solutions.

More specific training provided to provider sites emphasized how to discuss screening with patients. Staff members from the greater Seattle site mentioned that making sure clinic staff members such as medical assistants were comfortable with discussing screening with

patients led to greater referrals and increased screening utilization. An interviewee explained,

What we decided was to set up training specifically for medical assistants to explain to them how FOBT kits work and teach them how to talk to their clients about FOBT tests.

This particular site also encouraged provider sites to adopt system-based strategies to improve recruitment such as provider-reminder systems and chart flagging. In addition, provider sites were encouraged to identify a designated clinic program “champion”, a staff member who consistently prompts physicians and nurses to discuss colorectal cancer screening with their patients. A provider site staff “champion” from greater Seattle described the implementation of this recruitment strategy: “We started just automatically putting packets [FOBT kits] in the folders for those [patients] who do not have insurance and are over the age of 50 [and] that has been working so far.”

Although the Suffolk County, New York, site did not report difficulties recruiting patients for the program, program staff developed strategies to boost recruitment among community health centers that were lagging behind others in patient enrollment. Unlike the other four sites, Suffolk County had conducted previous formative research related to colorectal cancer screening in primary care facilities.⁴⁴ Specifically, results of this research suggested that direct referral from the primary care clinics to a point of contact at an endoscopy suite would be the least burdensome and most effective approach. The Suffolk County program incorporated the role of a physician, who received the referrals from the primary care centers, completed medical history reviews, and educated patients on screening processes before scheduling colonoscopy appointments.

Staff members with the Suffolk County site suggested that their use of a provider assessment and feedback tool was particularly effective for patient recruitment. The site developed a provider report card comparing the number of patient referrals across the community health centers, engendering a spirit of friendly competition among participating clinics. A staff member from Suffolk County described the report card:

When we went to the health centers to give the 1-year talk, I generated a report card to bring up some friendly competition, and we gave the health centers a list of where all the health centers stood with regard to number of referrals and how many of their referrals were actually eligible and how many were actually screened. So this generates some “Oh gosh, we should be better than this”-type thinking and hopefully gets them to screen more.

Tailored outreach and education—Finally, to combat a general lack of public knowledge about the importance and necessity of colorectal cancer screening, sites incorporated tailored educational messages and materials. Rather than relying solely on national colorectal cancer educational campaigns, program staffs developed locally relevant plans for their specific priority populations, including those who were especially difficult to recruit, such as men.

The Nebraska program represents a clear example of this more tailored approach to outreach and recruitment. Nebraska program staff members developed an aggressive education and awareness approach, which included a large-scale, sports-themed media campaign called “Stay in the Game.” The campaign engaged well-known college sports coaches and former University of Nebraska athletes to promote colorectal cancer screening among Nebraskans aged 50 and older. Men were a primary target for this campaign. A staff member described the impetus for creating “Stay in the Game”:

What led us to this [campaign] is we started enrolling people into the program and we were lacking men. We thought, men are associated with sports and Nebraskans are real big sports fanatics, so we’d try it out and see.

Agricultural events were an important venue for program staff to provide colorectal cancer education to Nebraskans. Site staff used creative educational tools, such as the game described below, at booths stationed at events:

Do you know the Operation Game? We actually made a colonoscopy game. So we have the picture of the colon, and then we cut out circles along the colon that are the polyps. Then they try to take out the polyp without it buzzing on them. I am amazed at how many people are drawn to that and not even necessarily to do the game, but just like, “Oh, this is my colon? Oh, this is what it looks like. Oh, this is what you mean when you reach the cecum.”

Site staff members in Nebraska suggested that adding these tailored educational activities to their recruitment strategy led to an increase in screening not only for the uninsured patients participating in the program but also for the insured population accessing care outside the program throughout the state.

Other program sites also developed tailored screening promotion approaches to bolster recruitment including staff appearances on local television programs and articles about colorectal cancer screening published in non-English-language newspapers, reaching culturally diverse communities. For example, to promote colorectal cancer screening and their program, Baltimore city staff members joined a television morning show that highlights local programs and events in the city. A site staff member described her participation: “In March, a local television station offered time slots to organizations, so we did a TV spot for Colorectal Cancer Awareness Month, and that generated more referrals than you can ever imagine.” An example of tailored outreach to diverse communities is the greater Seattle site’s publication of an article describing colorectal cancer prevention and program contact information in a citywide Vietnamese newspaper.

In summary, most site staff from across the program, except for that of Suffolk County, experienced challenges enrolling patients during early program implementation. They described this situation as a difficulty with recruitment and made changes to their original strategies to bring more patients into the program for colorectal cancer screening. The primary challenges faced in recruiting patients were a lack of public knowledge about the need for colorectal cancer screening, overreliance on in-reach to Breast and Cervical Program patients, and difficulty keeping colorectal cancer screening and the program a priority among staff members at partnering primary care clinics responsible for patient

recruitment. To address these challenges, programs took action by developing tailored educational messages to pair with their promotional activities. They also broadened the pool of potential patients by expanding recruitment to additional health care networks. Finally, to ensure the program was a priority at clinics, site staff increased the amount of support for provider site staff and encouraged the use of systematic approaches to identify patients for the CRCSDP.

DISCUSSION

Results from national surveys including the National Health Interview Survey and the Behavioral Risk Factor Surveillance System indicate that financial barriers for the uninsured are a major factor in poor adherence to colorectal cancer screening.^{2,45} Accordingly, a primary function of the program was to provide colorectal cancer screening and, if indicated, diagnostic tests at no cost to those who were otherwise unable to afford screening based on similar models of the Breast and Cervical Program. The CRCSDP, as a pilot program, was a kind of test market for translating current research regarding barriers into practice by addressing these barriers within a service delivery setting. Since then, evidence-based strategies to systematically increase colorectal cancer screening have been identified by the Community Guide.³²

Program planners for the CRCSDP anticipated a high demand for these services and were concerned this demand would overwhelm limited resources. However, the experience of 4 of the 5 program sites suggests that removing financial barriers to colorectal cancer screening was insufficient in creating interest and a demand among the majority of their priority populations. Several factors impeded patient recruitment: a primary dependence by sites on in-reach to Breast and Cervical Program patients, difficulty prioritizing the program among provider site staff responsible for patient enrollment, and patients' knowledge, attitudes, and beliefs about colorectal cancer screening.

Our research is limited by conditions discussed by Rohan et al elsewhere in this Supplement to *Cancer*.³⁸ Limitations pertaining to this particular report include the description of broader issues of patient recruitment for colorectal cancer screening, rather than an outline of the challenges by individual test type offered by each program. With only 5 cases and 3 variations of test choices offered (FOBT, colonoscopy, choice between either), we did not examine recruitment patterns by test type. Another important limitation of this report relates to our inability to quantify the success of any recruitment strategy used in the program, although this is not to say they were unsuccessful. Here we only review what happened, rather than comment on the effectiveness of recruitment activities. As issues of recruitment emerged over the course of the case study, we were able to incorporate related questions into our data collection instruments; however, an assessment of each strategy was never a component of this evaluation.

Our findings are consistent with other US studies demonstrating that even individuals with insurance coverage for screening do not always routinely seek it, if at all.^{44,46,47} Similarly, in countries like the United Kingdom, where all age-eligible citizens have access to colorectal cancer screening, studies have shown that non-financial barriers, such as a

patient's lack of knowledge and negative associations with colorectal cancer, hinder screening adherence.^{48–50}

Among patient recruitment challenges we identified were a lower-than-expected screening adherence by women participating in the Breast and Cervical Program. Other research supports this finding, suggesting that public health practitioners should not assume that patients adherent to 1 type of cancer screening will be amenable to similar testing.^{51–53} In 1 study, only 24% of 2616 eligible women approached during mammogram visits agreed to participate in colorectal cancer screening.⁵³ Similarly, Hay et al noted disappointingly low screening adherence for colorectal cancer among a group of mammography-adherent women.⁵¹ The authors conclude that to effectively recruit women during breast health visits, provider recommendations for colorectal screening must be delivered along with education about its benefits.

When faced with limited recruitment among Breast and Cervical Program women, some program sites expanded their network of providers to include new partnerships with safety-net health systems serving low-income, uninsured patients. These relationships proved mutually beneficial, suggesting that public health programs can offer health care organizations valuable assistance in designing and implementing systems to increase the number of patients screened and the quality of screening services. For instance, public health programs can strengthen existing partnerships with health care organizations by supporting systems to improve the quality of interventions, such as those that educate patients about the need for screening and recommend routine screening to age-appropriate patients.⁵⁴

It is well recognized that staff in primary care clinics, especially those treating underserved populations, face substantial demands.⁵⁵ Not surprisingly, several of our sites found that their provider staff responsible for program enrollment had difficulty prioritizing colorectal cancer screening. Research has shown that patients' acute care needs can be a barrier to provider recommendation of preventive health measures.⁵⁶ Other studies suggest that limited time for providers to discuss prevention during patient visits may lead to inconsistency in recommending colorectal cancer screening.^{55,56}

Our data show that providing ongoing support to clinic staff, assessing clinic recruitment performance and offering feedback, and encouraging the use of clinic champions and systematic reminders all played an important role in ensuring patients receive information about colorectal cancer and maintaining adequate patient referrals for screening. These findings are preceded by studies, such as those reviewed by the Community Guide, reporting the effectiveness of system-level interventions, such as patient and provider reminder systems (i.e., educational, targeted postcard mailers and patient chart flagging or electronic medical records reminders) and provider assessment and feedback, in increasing colorectal cancer screening within health care systems.^{12,32,56,57} In addition, the Suffolk County program's emphasis on reducing the burden on primary care for colorectal cancer screening facilitated referrals to colonoscopy screening.⁴⁴ The previous research that had been conducted by Suffolk County staff on barriers specifically for their local clinics allowed the site to translate findings into a program that directly tested identified impediments to screening.

Finally, our finding that patients' knowledge, attitudes, and beliefs about colorectal cancer screening were a barrier to recruitment is supported in the literature.^{18,58–60} As noted elsewhere in this Supplement to *Cancer*, social taboos regarding bowels and bowel movements inhibit the widespread acceptance of colorectal cancer screening.³⁸ The program responded by developing¹⁰ tailored educational messages, materials, and large-scale public media campaigns. Further promotional efforts must continue to normalize colorectal cancer screening within the general public.

In summary, the experiences of program and provider staff of the program illustrate the complexities of recruiting patients into an organized colorectal cancer screening program despite the removal of financial barriers. Our results indicate that a multipronged approach to patient recruitment is crucial. Program sites implemented interventions at the individual, interpersonal, and systems levels, suggesting that approaches such as the social ecological model^{49,50} provide useful frameworks for planning public health efforts for colorectal cancer screening. To optimize colorectal cancer screening, public health practitioners must work closely with the health care sector to implement evidence-based, comprehensive strategies across these multiple levels. With the passage of the Affordable Care Act, which extends coverage for colorectal cancer screening, public health professionals will soon have a unique opportunity to significantly increase population-level cancer screening prevalence.⁶¹

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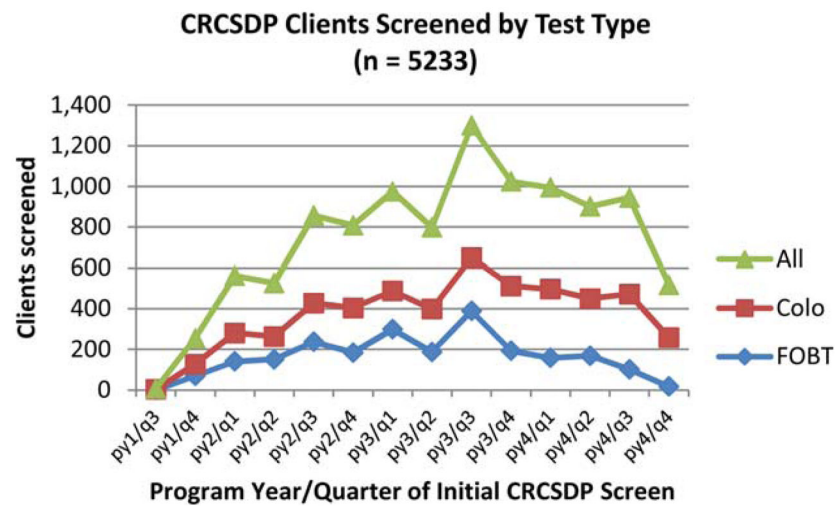


Figure 1.

Number of Colorectal Cancer Screening Demonstration Program (CRCSDP) participants screened by test type and program year (py), 2006–2009. * **The decline in screening within the last 2 quarters is attributed to closing out the program. Data are shown on initial screens only, excluding any repeat procedures. Colo indicates colorectal screening; FOBT, fecal occult blood test.

CRCSDP Participants by Gender (n = 5233) 2006-2009

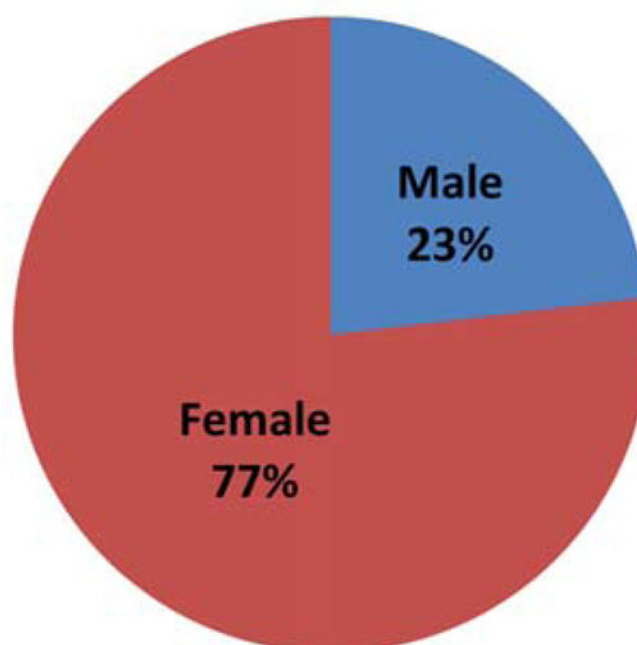


Figure 2.
Distribution of Colorectal Cancer Screening Demonstration Program (CRCSDP) participants by sex, 2006–2009.

TABLE 1

Original Recruitment Strategies by Site for CDC's Colorectal Cancer Screening Demonstration Program (CRCSDP)

Site—Test Type	Original Recruitment Strategies
Baltimore city, Maryland—colonoscopy	<ul style="list-style-type: none"> Identified and recruited female Breast and Cervical Program patients using hospital case managers/provider site coordinators, relying on large number of those in Breast and Cervical Program patient pool Participated in one-time local television promotion of the program Relied on case managers from contracted hospitals to conduct community and provider outreach
St. Louis, Missouri—switched from fecal occult blood test (FOBT) to colonoscopy	<ul style="list-style-type: none"> Used <i>Screen for Life</i> and American Cancer Society educational materials Used bus advertisements Partnered with faith-based organizations to educate and recruit community Used <i>Screen for Life</i> educational materials Set up booths at health fairs Mailed postcards and letters to Breast and Cervical Program patients targeting both female patients and their male counterparts Identified Federally Qualified Health Centers to refer patients
Nebraska—FOBT	<ul style="list-style-type: none"> Identified and recruited female Breast and Cervical Program patients by sending CRCSDP enrollment forms along with Breast and Cervical Program annual renewal forms Identified and recruited the male counterparts of Breast and Cervical Program patients by including additional CRCSDP enrollments forms for men in the household Asked Breast and Cervical Program-contracted primary care providers to recommend screening and encourage enrollment of Breast and Cervical Program patients
Suffolk County, New York—colonoscopy	<ul style="list-style-type: none"> Created a “low-burden” system for primary care providers based on research conducted before funding County health centers recommended screening of eligible population and referral to the CRCSDP for follow-up Worked with the county health commissioner to send letters informing age-eligible county residents of the program Created a performance report card for health centers
Greater Seattle—FOBT and colonoscopy based on shared decision-making process	<ul style="list-style-type: none"> Breast and Cervical Program-contracted clinics recruited Breast and Cervical Program patients for the CRCSDP Relied on clinic providers and support staff from community primary care clinics to recruit eligible patients for screening, enrolled patients, provided FOBT kits, and conducted follow-up Grantee provided training of clinic providers and staff to support program practices